PHN PUBLIC HEALTH NURSING   WILEY

Dear Pandemic: Nurses as key partners in fighting the COVID-19 infodemic

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Abstract

The COVID-19 pandemic and subsequent proliferation of misinformation have created parallel public health crises. Social media offers a novel platform to amplify evidence-based communication to broader audiences. This paper describes the application of science communication engagement on social media platforms by an interdisciplinary team of female scientists in a campaign called *Dear Pandemic*. Nurses are trusted professionals trained in therapeutic communication and are central to this effort. The *Dear Pandemic* campaign now has more than 97,000 followers with international and multilingual impact. Public health strategies to combat misinformation and guide individual behavior via social media show promise, and require further investment to support this novel dissemination of science communication.

KEYWORDS
infodemiology, misinformation, SARS-CoV-2, science communication, social media

1 | INTRODUCTION

Alongside the current COVID-19 pandemic, there has also been an "infodemic," defined as a rapid flooding of information, both true and untrue, which may perpetuate confusion, fear, mistrust, and propagation of information counter to intended public health messaging (WHO, 2020). The study of this vast amount of information, known as infodemiology, is critical to building public health interventions to combat misinformation and help individuals, groups, and communities navigate and distill important public health messages. Nursing practice, built upon therapeutic communication, provides a bridge to public discourse in cooperation with an interdisciplinary team of scientists. Social media is a critical means of communication and a key channel for nurses to provide and clarify key information during a pandemic.

Since the emergence of the novel coronavirus (SARS-CoV-2) and subsequent COVID-19 pandemic, there has been a rapid increase in

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health-related information, primarily spread through social media and web-based news sources (Aharan, Ruban, Dubovi, 2020) Recent examples of COVID-19 misinformation contributing to the infodemic include widely-shared social media posts about the dangers of wearing masks, the use of supplements and untested treatments to cure COVID-19, and even conspiracy theories claiming that COVID-19 is a "hoax" (Bagherpour & Nouri, 2020). While traditional means of health communication and education in nursing have centered on nurse-individual interactions, nurses are also well prepared to educate groups, communities, and populations through broader venues including news media outlets, public health departments, and social media.

As part of its prevention strategies, the World Health Organization suggests managing misinformation through the scientific discipline of "infodemiology". Infodemiology includes examination of trends in web-based health information to actively counter misinformation by integrating evidence and disseminating accessible, applicable recommendations to individuals and communities in order to modify health knowledge, attitudes, practices, and behaviors (World Health Organization, 2020). Essential to the discipline of infodemiology is the critical study of managing misinformation to instill behavior change and mitigate the pandemic's effects (World Health Organization, 2020). A well-known example of infodemiology in practice is the analysis of Google search trends about symptoms to predict influenza outbreaks (Mavragani, 2020). During the COVID-19 pandemic, misinformation is rampant, spreads quickly, and is easily accepted by users seeking health guidance—especially on social media (Baum et al., 2020). A key to fighting misinformation is accelerating the spread of good information, including evidence-based public health messages.

While the vital role of nurses as front-line clinicians during this pandemic is amplified, the role of nurses as educators and public-facing experts receives less attention. When compared to other professionals, nurses rank as the most ethical and honest by public perception (Reinhart, 2020). Nurses are ideally suited to influence the actions of individuals, to improve the health of the public through therapeutic communication, and to conduct public outreach. Information about disease outbreaks often aim to effectively communicate risks so that individuals and groups can make well-informed choices in line with public health messaging (World Health Organization, 2017). The voices of trusted, well-informed nurses via social media outlets, in concert with other highly trained professionals, amplifies the dissemination of effective public health messaging in alignment with public health departments, local, state and federal government, and larger organizations such as the Centers for Disease Control (CDC) and the World Health Organization (WHO).

One strategy that equips nurses to successfully practice infodemiology is the development of the therapeutic relationship. The practice of developing the therapeutic relationship entails meeting individuals where they are, physically and psychologically, to navigate health and wellness comprehension and action (Peplau, 1995). It requires nurses to focus on relationship building and communication of evidence-based recommendations to promote health and safety through the phases of orientation (establishing trust), working (identifying a problem), and resolution (resolving a problem), through which the client/patient drives the content and process (Forchuk & Dorsay, 1995). This is central to the nurse-patient relationship, patient education, and to combating misinformation among both individuals and communities (Forchuk & Dorsay, 1995). The trustworthiness of nursing professionals increases their ability to amplify good information and deliver it on a larger scale. Social media can serve as a platform for establishing the therapeutic relationship and ultimately provide content and education driven by the user--analogous to the patient-centered education derived from the traditional one-on-one therapeutic relationship.

TABLE 1 Dear Pandemic Posts with Reach Greater than 100,000

Post	Date	Reach
Can't I just give my nose a little break while I'm wearing my mask?	September 12, 2020	287,343
So the CDC just released data that said 94% of U.S. COVID-19 deaths had underlying medical conditions?	August 31, 2020	263,014
What do you think of the idea of "focused protection" or "shielding" the vulnerable so that everyone else can get on with normal life?	October 12, 2020	196,623
How risky are my favorite places and activities?	June 12, 2020	173,001
Is trick-or-treat cancelled?	September 1, 2020	171,999
What are the 14 days of Thanksgiving 2020?	November 12, 2020	141,502
I can't help but notice how well Maine is controlling COVID-19. What's their secret? Rural state? Rich state? Not many older people?	October 25, 2020	124,477
What is crisis fatigue?	September 2, 2020	112,305
Are we OVER or UNDER counting COVID-19 deaths?	August 15, 2020	107,129

Note: Data as of 1/4/2020 at 12 p.m. Data are available upon reasonable request from the corresponding author.

2 | WHY SOCIAL MEDIA?

Social media can play a key role in the monumental task of informing the public about a novel disease and influencing personal actions. Americans increasingly report seeking news from social media platforms and less often from print news sources (Shearer, 2018). In a study examining the source of news information pertaining to the COVID-19

FIGURE 1 Sample Dear Pandemic Post on Instagram. Note: Posted on November 26, 2020 at https://www.instagram.com/p/CIDp-0xsR_B/

TABLE 2 Dear pandemic taxonomy

Biology/Immunology
Clinical Symptoms
Data and Metrics
Families
Infection and Spread
Masks
Mental Health
Posts en Español
Reopening
Schools
Social and Racial Justice
Socializing
Staying Safe
Testing and Contact Tracing
Travel
Treatments
Uncertainty and Misinformation
Vaccines

Note: Categories from www.dearpandemic.org website

vaccine, 1 in 5 reported getting vaccine information from Facebook (Hamel et al., 2021). In another study, 80% of people report social media sites as a regular source of news (Pew Research Center, 2021). However, patterns of use are not homogenous. For example, people under 30 are most likely to get news from social media outlets but may use Instagram more often than Facebook (Pew Research Center, 2021). In this context, the use of social media to spread public health information offers great opportunity as well as challenges.

Proliferation of misinformation on social media venues like Facebook can also present a significant public health threat. For example, in the aftermath of the Boston marathon bombing, factual information took nearly six times as long to reach 1,500 people compared to misinformation (Fox, 2018). Similarly, in an analysis of tweets of popular news headlines, false news stories were approximately 70% more likely to be retweeted than true stories (Fox, 2018). And finally, in the wake of the pandemic, health information regarding the coronavirus was found to be associated with verified news sources only about 50% of the time (Cuan-Baltazar et al., 2020). Social media companies have recently faced criticism for their failure to control the spread of misinformation and for the use of algorithms that create "echo chambers"—presenting users with information that supports their previously held beliefs, regardless of whether it is factual or inaccurate (Menczer & Hills, 2020). Unfortunately, this rapid spread of misinformation on social media threatens to undermine evidence-based efforts to mitigate public health threats like a pandemic.

Nursing partnership with colleagues in other disciplines further amplifies diverse expertise to ensure that public health messages are widely received, built on a foundation of trusted relationships, and evidence-based. Clinical expertise, strong patient relations, and public trust help propel the evidence-based messages of interdisciplinary scientists into the hands of the public. Nurses who seek to counter health misinformation and provide the public with accurate recommendations about COVID-19 and other disease outbreaks must leverage social media platforms and web-based outlets to reach individuals who may not present to traditional clinic settings. In partnership with epidemiologists, immunologists, population scientists, and behavioral scientists as well as other professionals, nurses provide a linkage to individuals and the care systems they rely upon.

3 | COMBATTING MISINFORMATION VIA SOCIAL MEDIA

The *Dear Pandemic* social media campaign was launched on Instagram on March 10, 2020 and on Facebook on March 12, 2020 with the goal of combatting the COVID-19 pandemic and related infodemic (Dear Pandemic, 2021). *Dear Pandemic* was designed to provide curated, comprehensive, and timely information about the COVID-19 pandemic. The multidisciplinary group of female scientists (also known as "Those Nerdy Girls") includes experts in epidemiology, demography, public policy, behavioral science, immunology, family medicine, and nursing. The team also includes several student interns and volunteer experts in web development, project management, and Spanish

	Facebook	Querida Pandemia	Instagram	Twitter
Launch Date	March 12, 2020	Sept 21, 2020	March 10, 2020	March 31, 2020
Posts to Date	739	70	560	3,124
Followers	58,200	3,525	8,890	6,345
30-day Reach*	780,772*	188,921*	183,272[†]	291,000*

TABLE 3 Dear pandemic reach across platforms

Note: Data available upon reasonable request from the corresponding author.

*Reach for Facebook, Querida Pandemia, and Twitter calculated from 12/7/2020 until 1/3/2021.

[†]Instagram reach represents the daily average reach from 12/4/2020 – 1/4/2021 multiplied by 31.

language translation. The three nurses on the team are essential to communication around clinical care, wellbeing, decision-making, and anticipatory guidance. In a question and answer format, complex topics such as COVID-19 aerosol transmission, risk reduction strategies to avoid infection, and excess mortality are explained and shared widely. Table 1 highlights other widely shared *Dear Pandemic* posts.

The primary platform of *Dear Pandemic* is Facebook, with additional dissemination platforms on Twitter, Instagram, Linked In, and the *Dear Pandemic* website.[1] Additionally, a parallel Spanish language Facebook page, *Querida Pandemia*, was launched on September 21, 2020 to provide the same high-quality content to Spanish-speaking communities in the United States, Latin America, and globally. The five channels across four social media platforms allows the team to engage with a broad audience, and also allow Dear Pandemic followers to easily share content within their own personal network of family and friends. This is critical, as 40% of people across demographic and age groups cite friends and family as their source of COVID-19 information. (Hamel, et al.2021). The combination of vetted scientific information, conversational language, and the ability to share posts within trusted networks results in significant engagement with *Dear Pandemic* content and downstream impact. An example of a *Dear Pandemic* Instagram post can be found in Figure 1 with companion text available on Facebook (Dear Pandemic, 2020). A taxonomy of *Dear Pandemic* topics is included in Table 2.

Dear Pandemic's strategy of daily messaging in bite-size chunks via social media platforms has yielded wide reach and impact in the last 9 months. On Facebook alone, *Dear Pandemic* now has over 80,000 followers. Across the four platforms, the project has over 100,000 followers. Since November of 2020, the content reaches more than one million people monthly. The average monthly reach across all the platforms is summarized in Table 3. Table 4 presents follower comments that reflect the true impact of this work in guiding individual and collective behavior. Many note how *Dear Pandemic* serves as a trusted resource, providing a way for followers to make sense of information, and supporting individuals to manage their own wellness by reducing excessive media consumption. One follower stated, "You are not just providing a critical educational service during a pandemic, you are inspiring girls everywhere to lean into data and

science—nerdy is cool." Another shared, "The *Dear Pandemic* page and updates are outstanding, and a must-follow for keeping up with the latest findings in a practical and actionable way." Dear Pandemic posts are commonly shared within community groups including medical practices, neighborhood groups, and among diverse service providers such as therapists, dentists, and child caregivers.

Dear Pandemic scientists are also amplifying important messages around pandemic safety and information hygiene in the popular media. Impact from Dear Pandemic's team through bylines, authorship, and expert consultation has extended to news media outlets including *NBC Global*, *The New York Times*, *Slate*, *National Geographic*, *The Guardian*, *Fortune*, and the *Washington Post* totaling over 400 appearances. We have also provided local expertise to school districts, universities, public health departments, and local media sources (such as the *Milwaukee Journal Sentinel*, Minnesota Public Radio, and *The Philadelphia Inquirer*). Appreciation for the approachable, rigorous scientific content comes in many forms including featured content at multiple levels as reflected by featured *Dear Pandemic* content from institutions such as the WHO and implementation of recommendations in clinician practices and schools. In addition, the Dear Pandemic scientific team is currently conducting an impact evaluation using a developmental evaluation framework, which is informative for an innovative public health project that emerges rapidly and has no formal control group. Outcomes will be measured at the levels of information environment, readers (and their networks), and systems.

4 | THE ROLE OF THE DEAR PANDEMIC NURSES

The nurses on the *Dear Pandemic* team strengthen the delivery of highly rigorous content to the public by rooting content in the lived experience of COVID-19 care delivery, leaning on decades of experience engaging in trusting relationships, and providing actionable guidance to navigate complex emotions and choices. The nurses of *Dear Pandemic* all continue to practice clinically with populations disproportionately affected by the COVID-19 pandemic by delivering mental health care, care for people who use drugs, and community and nursing home care for low-income older adults. Paired with the question box from followers, *Dear Pandemic* responds to real-time concerns rooted in interactions. The nurses of Dear Pandemic excel in

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[1]Facebook (@dearpandemic): https://www.facebook.com/dearpandemic; Twitter (@DearPandemic): https://twitter.com/DearPandemic; Instagram (@dear_pandemic): https://www.instagram.com/dear_pandemic/; Website: https://dearpandemic.org/.

TABLE 4 Insightful facebook comments

Date	Post Topic	Follower Comment
June 3, 2020	COVID-19 Safety precautions during the Black Lives Matter protests	Dear Pandemic advice was critical to us when we were deciding then preparing to go to the march this weekend. Love that page!
June 28, 2020	Follower Recommendation	Dear friends: I have generally made few comments about the pandemic but as the world and your life and our social circles open up, I cannot recommend the following FB/Instagram/Twitter site enough: "Dear Pandemic." I have individually told several friends about the page but want to make a blanket recommendation to look at this site for all of your COVID-19 questions and answers. They are vetting a ton of academic research in plain English, giving recommendations on the risk of activities (often within the context of disease spread in communities), and pointing out good and bad science. They even do Q and As –online and in person! ... They are stellar scientists and are giving very good info without scare tactics or sugar coating lack of risk. When recs change, they are also explaining why. Check them out—for your sanity and for the sanity of those around you!
July 21, 2020	Face Shields	This is a very nice COVID-science site/team of superheroes sorting through the data to give clear answers to what we should and shouldn't do. Masks, everyone. And follow this page or scan it for answers. Good science is good preparedness and practice.
August 6, 2020	Note of Gratitude	Thank you for all the Dear pandemic work. It's really helped me advocate for safety measures and PPE at my school, which is opening with a hybrid model. I'm not sure HOW you're doing it all, but I'm grateful and so are my colleagues.
August 13, 2020	Daycare	I've been getting posts from Dear Pandemic for a while now-It's a project of Nerdy Girls. Their information is factual, the science is explained very well, and everything presented is sourced. This one might be helpful if you are getting information to parents about the safety of childcare.
September 28, 2020	Mortality Rates and COVID-19	Great page to follow for trustworthy information and myth-busting regarding COVID-19!
October 9, 2020	Testing	Once again, Dear Pandemic proves to be a great resource. This is another very timely explainer for one of the concepts that seems to be eluding many: the limits of testing for mitigation and the need to combine it with other measures. You can be contagious both before you have symptoms and before you test positive.
October 20, 2020	Safety of activities	As an ER doc in an area that has seen many patients with COVID-all ages, all different risk groups, some with no risks at all, all different symptoms.... the medical community has been consistent with our message from day one. It's quite exhausting but we will continue to show up! Don't listen to the noise. Listen to the healthcare professionals. Stay safe! Luv this example. I will incorporate it into my discussions! Thank you!
November 16, 2020	Curfews	Your content on this page is so helpful! I often find myself in situations where I need to quickly support and defend COVID safety measures, and your Q/A posts have been a great reference for me.
December 2, 2020	COVID-19 Deaths	The nerdy girls at Dear Pandemic are great-clear, concise, reliable. Dear pandemic is one of my go to pages for solid science-based COVID-19 information. Go like their page-you won't be disappointed. Here they demolish the myth that COVID cases are being overcounted.

Note: Statements retrieved from Dear Pandemic public comments on Dear Pandemic platforms. Data publicly available.

finding common ground to discuss complex, personal, and politically charged topics such as family dynamics when not everyone agrees on masks and how to acknowledge and process emotions of anger and sadness. These post resonate with followers and provide a space for interaction around a diverse set of topics rooted in accessibility and inclusivity. Well-cited facts are not enough to change behavior. Instead, the nurses of *Dear Pandemic* along with a robust team of interdisciplinary partners situate facts in a low-barrier community of trust and interpersonal experience while making content easy to share within personal networks.

5 | FORGING A PATH FORWARD

Platforms such as *Dear Pandemic* will not singlehandedly solve the deep divides present in our society, but can offer fresh and engaging

spaces to meet people where they are—on social media seeking answers. The exact tools capable of spreading misinformation can and should be utilized to advance good information. Nursing expertise in health and relationships, paired with an interdisciplinary team of female scientists, is well-suited for this mission. The inclusion of nurses in *Dear Pandemic* enhances follower engagement and the depth of impact with individuals and community groups. Public health crises including substance use and overdose, homelessness, climate change, and other infectious disease pandemics will continue to threaten our communities when COVID-19 subsides. Sustaining social media communities centered on public health will serve as a valuable infodemic and public health tool for the future. As sociologist and physician Nicholas Christakis notes, "Everywhere you see the spread of germs, for the last few thousand years, you see right behind it the spread of lies (Gross, 2020)."

Curating and disseminating content through projects like *Dear Pandemic* requires a re-imagination of deeply rooted value systems in academics and nursing practice. *Dear Pandemic* has demonstrated that consistently publishing high-quality content outside a peer-reviewed venue can result in incredible impact—personal behavior change, informed nodes of trust to further disseminate factual information, and resources for community providers navigating constantly evolving knowledge. Social media as a vehicle for health messaging requires investment. All members of the *Dear Pandemic* team with the exception of an expert in graphic design and student interns donate their time and expertise to this campaign outside of clinical and academic responsibilities. Current conversations around academic and clinical productivity metrics as well as engaged scholarship are increasingly focused to reward the investment of time and talent into public health campaigns. However, more traditional models that value high impact journal publications and grants may limit the growth of this impactful tool. This work does not fit neatly into pre-defined categories of impact and instead bridges academic productivity, service, and teaching. New academic and practice models that dedicate funding and time to curate public health content and engagement are required to extend this type of meaningful outreach. Additionally, financial investment in a team of professionals who provide content expertise in social media outreach, web design, and logistical support are essential to the success of this model.

Now is the time for nurses to flex their communication and trust muscles in both traditional and innovative ways to advance the health of the public through trusted, actionable messaging in addition to exceptional patient care. Nurses are leaders in patient-centered healthcare and critical partners in the dissemination of information during the pandemic. *Dear Pandemic* is both an example of necessary low-barrier information exchange with the public and a tool for community providers like nurses to stay informed of breaking news. Nurses' training in evidence-based practice, communication, and patient education are ideally suited to leverage the tools of social media to battle the current pandemic and infodemic. Increased engagement of nurses in endeavors like *Dear Pandemic* amplifies the impact of collective interdisciplinary efforts to educate the public, contain misinformation, and motivate individual and systemic action.

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